REVISED 10/08

LSUE COURSE SYLLABUS

I.	**Mathematics 1431**	**Instructor: Mathematics Faculty**

II. Course description from the current LSUE catalog:

Calculus with Business and Economic Applications. Lec. 3; Cr. 3.
Differential and integral calculus of algebraic, logarithmic, and exponential functions; applications to business and economics, such as maximum-minimum problems, marginal analysis, and exponential growth models. Credit will be given for only one of the following: Mathematics 1431, 1441, 1550.
Prerequisite: A grade of C or better in Mathematics 1021, or consent of the Head, Division of Sciences.

III. Textbook(s) and other required materials:

Brief Calculus, An Applied Approach, 8th ed. by Ron Larson.
Students are required to use a graphics calculator in this course.

IV. Evaluation/grading (policy and basis; number and frequency of tests and papers; weights of particular tests or papers; etc.):

Semester grades are largely determined by performance on hour exams and a comprehensive final exam. Other factors that may be used in determining grades are homework, pop quizzes, recitation, and attendance. A departmental final exam will be given in the event of multiple sections.

V. Policies pertaining to attendance, late work, make-up work, etc.:

Students are expected to attend class on a regular basis. Make-up exams or submission of late work will be allowed at the discretion of the instructor.

VI. Course objectives:

A. Development of an understanding, awareness, and appreciation of mathematics.
B. Enhancement of problem solving abilities.
C. Enhancement of mathematical communication skills, both in written and oral form.

D. Improvement of critical thinking and reasoning abilities.
E. Enhancement of understanding of mathematical structure and operations.
F. Increased use of multi-media technology as a tool for both learning and performing mathematics.
G. Heightened awareness of the connectiveness of mathematics, and also its relationship with both other disciplines and the real world.

VII. Major instructional objectives:

Upon completion of this course the student should be able to:

A. Evaluate and simplify elementary limits and understand the intuitive concept of continuity.
B. Apply various techniques of differentiation and integration on elementary exponential, logarithmic and rational functions.
*C. Understand and interpret Marginal Analysis.
D. Solve applied business optimization problems.
E. Graph elementary functions using calculus techniques.
F. Intuitively understand the geometric meaning of a function's derivative and antiderivative.

VIII. Brief summary of course content by major units of instruction:

1. Functions, Graphs, and Limits
   1.2) Graphs of Equations
   1.4) Functions
   1.5) Limits
   1.6) Continuity

2. Differentiation
   2.1) The Derivative and the Slope of a Graph
   2.2) Some Rules for Differentiation
   2.3) Rates of Change: Velocity and Marginals
   2.4) The Product and Quotient Rules
   2.5) The Chain Rule
   2.6) Higher-Order Derivatives

3. Applications of the Derivative
   3.1) Increasing and Decreasing Functions
   3.2) Extrema and the First-Derivative Test
   3.3) Concavity and the Second-Derivative Test
   *3.4) Optimization Problems
   3.5) Business and Economics Applications
   *3.6) Asymptotes

*3.7) Curve Sketching: A Summary
*3.8) Differentials and Marginal Analysis

4. Exponential and Logarithmic Functions
   4.1) Exponential Functions
   4.2) Natural Exponential Functions
   4.3) Derivatives of Exponential Functions
   4.4) Logarithmic Functions
   4.5) Derivatives of Logarithmic Functions
   4.6) Exponential Growth and Decay

5. Integration and Its Applications
   5.1) Antiderivatives and Indefinite Integrals
   5.2) Integration by Substitution The General Power Rule
   5.3) Exponential and Logarithmic Integrals
   5.4) Area and the Fundamental Theorem of Calculus
   5.5) The Area of a Region Bounded by Two Graphs
   5.6) The Definite Integral as the Limit of a Sum

6. Techniques of Integration
   6.1) Integration by Parts and Present Value
   6.2) Improper Integals

IX. Methods of instruction:

The primary method of instruction is the lecture method with class discussion.

X. Brief overview of special instructions:

Students may seek tutorial assistance in the Tutorial Center.

XI. Bibliography of supplemental references and/or source materials:

None

ADS (Americans with Disabilities Act) Statement

Any student who is a “qualified individual with a disability” as defined by Section 504 of the Rehabilitation Act and Title II of the ADA, and who will need accommodated services (e.g., note takers, extended test time, audiotape, tutorials, etc.) for this course must register and request services through the Office of Academic Assistance Programs, S-150.

CSD | CODE OF STUDENT CONDUCT

LSUE enforces discipline on campus to protect the academic environment of the campus and the health and safety of all members of the University community. To accomplish this objective, the University enforces standards of conduct for its students. Students who violate these standards can be denied membership in the LSUE community through imposition of disciplinary sanctions.

The LSUE Code of Student Conduct can be found on the LSUE website (lsue.edu). Follow the “Current Students” link from the homepage, and then click on “Student Handbook.”